

1. The Coriolis component of acceleration exists when:

- a) There is only linear motion
- b) There is only rotational motion
- c) A point moves along a path that has rotational motion
- d) There is only uniform motion

Answer: c

2. The direction of Coriolis component of acceleration is:

- a) Along the centripetal acceleration
- b) Along tangential acceleration
- c) The direction of relative velocity vector rotated by  $90^\circ$  in the direction of angular velocity
- d) Opposite to angular velocity

Answer: c

3. In a simple harmonic motion cam follower, the acceleration is proportional to:

- a) Velocity
- b) Displacement
- c) Rate of change of velocity
- d) All of the above

Answer: b

4. For simple harmonic motion of the follower, what does a cosine curve represent?

- a) Displacement diagram
- b) Velocity diagram
- c) Acceleration diagram
- d) None of the above

Answer: c

5. The absolute acceleration of any point P in a link about center of rotation O is:

- a) Along PO

- b) Perpendicular to PO
- c) At  $45^\circ$  to PO
- d) Along OP

Answer: d

6. Angular acceleration of a link can be determined by dividing the:

- a) Centripetal component of acceleration with length of link
- b) Tangential component of acceleration with length of link
- c) Resultant acceleration with length of link
- d) None of the above

Answer: b

7. Klein's construction can be used to determine acceleration of various parts when the crank is at:

- a) Inner dead centre only
- b) Outer dead centre only
- c) Right angles to the line of stroke only
- d) All positions including inner dead centre, outer dead centre, and right angles

Answer: d

8. The pressure angle of a cam depends upon:

- a) Offset between centre lines of cam and follower
- b) Lift of follower
- c) Angle of ascent
- d) All of the above

Answer: d

9. For the same lift and same angle of ascent, a smaller base circle in a cam will give:

- a) A smaller value of pressure angle
- b) A larger value of pressure angle
- c) No change in pressure angle
- d) None of the above

Answer: b

10. The sense of Coriolis component is such that it:

- a) Leads the sliding velocity vector by  $90^\circ$
- b) Lags the sliding velocity vector by  $90^\circ$
- c) Is along the sliding velocity vector
- d) Leads the sliding velocity vector by  $180^\circ$

Answer: a